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EXAMINER

ZEWDU, MELESS NMN

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/009,215

Applicant(s)

PRUUDEN ET AL.

Examiner

Meless N Zewdu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 January 1947.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on 9/30/04.
2. Claims 40-47 have been added new.
3. Claims 1-47 are pending in this action.
4. This action is final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 12 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (APA) in views of Kito (US 6,263,207 B1) and Strawczynski et al. (Strawczynski)(US 6,038,452).

As per claim 1: the admitted prior art discloses a telecommunications system comprising:

a first base station and a second base station, both capable of communicating by radio with a first terminal (see fig. 1, elements 4, 6, 5 and 9; page 1, line 20-page 2, line

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2). Each of the base stations cited in fig. 1 are capable of the mobile terminal 9 and they can be labeled as BS1, BS2, etc.

a telecommunications network capable of coupling the first base station to a second terminal unit over a first route and capable of coupling the second base station to the second terminal unit over a second route)see fig. 1, elements 7, 8, 10 and 14; page 1, line 20-page 2, line 2). The switch 7 (in fig. 1) is capable of connecting the terminal 9 to terminal 14 via any of the base stations the mobile terminal is currently attached to. But, the admitted prior art (APA) does not explicitly teach about a routing unit for determining whether the first terminal unit is to be communicate with the second terminal unit via the first or second base stations in dependence on factors that include quality of at least part of the first and second routes whereby traffic data may be communicated between the first terminal unit and the second terminal unit via the first base station or the second base station, as claimed by applicant. However, in a related field of endeavor, Kito teaches that a base station can be changed/selected based on congestion condition/traffic and reception level of signals (see entire document, particularly, figs. 1 and 3; col. 3, line 34-col. 4, line 21; col. 6, lines 16-44). IN Kito's reference, the controller (fig. 3, element 35) could be considered as a routing unit. When the APA is modified by Kito, as discussed herein, the modified network will have a first route and a second route wherein "each of said first route and second route comprising at least one radio link segment and other non-radio link segments". Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the admitted prior art (APA) with the teaching of Kito for the advantage of

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maintaining communication quality even when congestion of communication channel occurs (see col. 3, lines 29-33). But, the APA in view of Kito does not explicitly teach about determining quality of routes, **wherein said at least a part of the first and second routes is at least one of the other non-radio link segments**, as claimed and argued by applicant. In brief, the difference feature is directed to determining a link quality for a communication route wherein the route includes wireless and wire-line links. However, in a related field of endeavor, Strawczynski teaches about a telecommunication network utilizing a quality of service (QOS) protocol wherein the system includes controlling the quality of service across a network that involves both wireless and wire-line/fixed links (see entire document, particularly, abstract; col. 2, line 43-col. 5, line 63, in particular col. 3, lines 47 col. 4, line 17). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Strawczynski for the advantage of improving the quality of communication services depending of the nature of end-to-end communications link (see col. 2, lines 29-34).

As per claim 2: a telecommunication system wherein the routing unit is capable of initiating handover of radio communications between the first terminal unit and the base stations from one of the base stations to the other in dependence on factors that include the quality of at least part of the first and second routes reads on '207 (see col. 3, line 34-col. 4, line 21). When the references are combined as shown above, the prior art handover would be in dependence of signal level/quality taught by Kito.

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As per claim 3: the system wherein the said factors include the quality of at least part of both the first and second routes reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 4: a telecommunication system wherein the routing unit is capable of comparing the quality of the first and second routes and making the determination that the first terminal unit is to communicate with the second terminal unit via the first or second base stations in dependence on the comparison reads on '207 (see col. 6, lines 16-col. 7, line 6; col. 8, line 58-col. 9, line 11).

As per claim 5: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 10: claim 10 recites a cellular telephony communications system employing the telecommunications system as claimed in claim 1, which would have been obvious from the combined references as shown in the rejection of claim 1. Hence, claim 10 has been rejected on the same ground and motivation as claim 1.

As per claim 12: a telecommunication system wherein the said factors include the quality of at least part of both the first and second routes reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 14: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first

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and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 15: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 16: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 17: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 32: a cellular telephony communications system employing the telecommunications system as claimed in claim 2 reads on '207 (see col. 3, line 34-col. 4, line 21).

As per claim 33: a cellular telephony communications system employing the telecommunications system as claimed in claim 3 reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

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As per claim 34: a cellular telephony communications system employing the telecommunications system as claimed in claim 4 reads on '207 (see col. 6, lines 16-col. 7, line 6; col. 8, line 58-col. 9, line 11).

As per claim 35: a cellular telephony communications system employing the telecommunications system as claimed in claim 5 reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 40: a method, wherein said step of estimating/determining a quality comprises measuring quality based on a measured error rate in the at least part of the first and second routes reads on "452 (see col. 1, lines 36-54; col. 8, line 53-col. 9, line 50).

As per claim 43: a method wherein said step of estimating/determining quality comprises measuring physical characteristics of the at least part of the first and second routes reads on '452 (see col. 10, lines 4-44). Noise density ratio and tandem conditions refer to or include physical characteristics of links.

Claims 6, 11, 19-23 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in views of Kito and Strawczynski as applied to claim 1 above, and further in view of Gilbert et al. (Gilbert) (US 5,737,365). Not: for examination purpose, claim 11 is considered first.

As per claim 11: other than one difference, the method claim of 11 is same as claim 1 above. Hence, the similar features of claim 11 are rejected on the same ground and motivation as claim 1. Treatment of the difference feature follows.

But, the APA in view of Kito do not explicitly teach the difference feature of claim 11, which is estimating the quality of at least part of the first and second routes, as claimed by applicant. However, in a related field of endeavor, Gilbert teaches about a signal strength estimator provided to determine a signal strength estimate and a signal quality estimator provided to take as input path/route metrics and signal strength estimates for each of received trellises and produce the received signal quality estimate (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention as made to further modify the above references for the advantage of selecting the most appropriate base station (see col. 1, lines 21-27).

As per claim 6: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 19: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

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As per claim 20: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 21: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 22: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 23: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine

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in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 36: a cellular telephony communications system employing the telecommunications system as claimed in claim 36 reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combined in the manner shown above, the claimed system would have been obvious.

As per claim 44: a telecommunication system, wherein the quality of the at least part of the first and second routes is based on a measured error rate in the at least part of the first and second routes reads on '452 (see col. 1, lines 36-54; col. 8, line 53-col. 9, line 50).

As per claim 47: a telecommunication system, wherein the quality of the at least part of the first and second routes is based on measured physical characteristics of the at least part of the first and second routes reads on '452 (see col. 10, lines 4-44). Noise density ratio and tandem conditions refer to or include physical characteristics of links.

Claims 7-8 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above references as applied to claims 1 and 6 above, and further in view of McClennon et al. (McClennon) (US 6,324,170 B1).

As per claim 7: but, the above references do not explicitly teach about a telecommunications system wherein the estimate of quality (signal quality) is derived from a communication protocol, as claimed by applicant. However, in a related field of endeavor, McClennon teaches that an estimate of a delay introduced by a network involves the use of timestamps in A RTP control protocol (RTCP), which is part of the

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RTP protocol and is used for session monitoring (see abstract; col. 4, line 58-col. 5, line 52). It is to be noted that the delay estimate in a call can be taken as the estimate of the quality of the call. Hence, a high delay estimate can constitute a low quality call signal and vice versa. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the above references with the teaching of McClennon for the advantage of estimating the delay in a call.

As per claim 8: a telecommunication system wherein the protocol is RTCP (real-time control protocol) reads on '170 (see abstract; col. 4, line 58-col. 5, line 52).

As per claim 37: a cellular telephony communications system employing the telecommunications system as claimed in claim reads on '170 (see abstract; col. 4, line 58-col. 5, line 52). The cellular system is obvious from the combination of references employed in the rejection of claim 7.

As per claim 38: a cellular telephony communications system employing the telecommunications system as claimed in claim reads on '170 (see abstract; col. 4, line 58-col. 5, line 52). The claimed cellular system would have been obvious from the combination of references employed in the rejection of claims 7-8.

Claims 9, 13, 18, 24-31 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above references as applied to claim 1 above, and further in view of LaPorta et al. (LaPorta) (US 6,654,359 B1).

As per claim 9: but, the above references do not explicitly teach about a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links, as claimed by applicant.

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However, in a related field of endeavor, LaPorta teaches about a wireless access to packet based networks wherein base stations, used by mobile stations, are used to mobile stations to a packet based wired network (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the above references with the teaching of LaPorta for the advantage of providing mobile users wireless access to packet based networks (see col. 1, lines 19-21).

As per claim 13: a telecommunication system wherein the routing unit is capable of comparing the quality of the first and second routes and making the determination that the first terminal unit is to communicate with the second terminal unit via the first or second base stations in dependence on the comparison reads on '359 (col. 13, lines 36-49). Since the feature of claim 13 is similar to the feature of claim 9, claim 13 has been rejected on the same ground and motivation as claim 9.

As per claim 18: a telecommunication system wherein the said factors include the quality of radio communications between the first terminal and at least one of the first and second base stations reads on '207 (see col. 3, line 34-col. 4, line 21; col. 6, lines 16-61).

As per claim 24: a telecommunication system comprising estimation apparatus for estimating the quality of at least part of the first and second routes and providing an indication of that quality to the routing unit reads on '365 (see abstract; col. 2, lines 43-62; col. 5, lines 7-44; col. 9, line 63-col. 10, line 48). When the references are combine

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in the manner shown above, the signal quality estimate will be provided to the base station controller that routes the signal.

As per claim 25: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 25 is similar to that of claim 9, claim 25 has been rejected on the same ground and motivation as claim 9.

As per claim 26: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 26 is similar to that of claim 9, claim 26 has been rejected on the same ground and motivation as claim 9.

As per claim 27: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 27 is similar to that of claim 9, claim 27 has been rejected on the same ground and motivation as claim 9.

As per claim 28: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 28 is similar to that of claim 9, claim 28 has been rejected on the same ground and motivation as claim 9.

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As per claim 29: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 29 is similar to that of claim 9, claim 29 has been rejected on the same ground and motivation as claim 9.

As per claim 30: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 30 is similar to that of claim 9, claim 30 has been rejected on the same ground and motivation as claim 9.

As per claim 31: a telecommunication system wherein at least part of a first and second routes is implemented by a packet based communications links reads on 359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). Since the feature of claim 31 is similar to that of claim 9, claim 31 has been rejected on the same ground and motivation as claim 9.

As per claim 39: a cellular telephony communications system employing the telecommunications system as claimed in claim reads on '359 (see abstract; col. 2, line 33-col. 3, line 28; col. 4, line 65-col. 5, line 55; col. 7, lines 18-36; col. 13, lines 31-49). The claimed cellular system would have been obvious from the combination of references employed in the rejection of claim 9.

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Claims 41, 42, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over the above references as applied to claims 1 and 11 above, and further in view of Gudat et al. (Gudat) (US 6,771,609 B1).

As per claim 41: the above cited references do not explicitly teach about a method wherein a step of estimating quality comprises determining a speed of communication in the at least part of the first and second routes, as claimed by applicant. However, in a related field of endeavor, Gudat teaches an amount of data delivered per time unit, measured in bits/second or packets/second, and delay are two quality of service (QOS) parameters (see col. 13, line 66-col. 14, line 9). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above reference with the teaching of Gudat for the advantage of optimizing communication routes.

As per claim 42: a method wherein said step of estimating quality comprises measuring a consistency of a delay in the at least part of the first and second routes reads on '609 (see col. 13, line 66-col. 14, line 9). Ground and motivation is as provided in the rejection of claim 41.

As per claim 45: the feature of claim 45 is similar to the feature of claim 41. Hence, claim 45 is rejected on the same ground and motivation as claim 41

As per claim 46: the feature of claim 46 is similar to the feature of claim 42. Hence claim 46 is rejected on the same ground and motivation as claim 42.

Response to Arguments

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

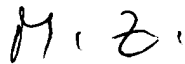
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N Zewdu whose telephone number is (703) 306-5418. The examiner can normally be reached on 8:30 am to 5:00 pm..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703) 308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Meless Zewdu



Examiner

18 January 2005.



WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600